

## Brosse circulaire roulante

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Rolling circular brush.

One knows the mode of action of the straight with alternating longitudinal movement, or circular brushes, with rotary motion. In the two cases, the action of the rubbing surface is not as effective as it would be desirable, in consequence of the fact that hairs or bristles which constitute it, braked by the surface on which they support, cannot resist the effort to which the displacement of their support subjects, and curve themselves.

It will be understood that the hairs or bristles of a brush, rubbing on a surface not by their ends, but by their sides, rather tend to smooth any substance adhering to the aforementioned surface, that to detach it. This effect of smoothing appears clearly when the substance to be removed is lubricating or viscous (film of the teeth for example). The present invention has as an object to improve the effect of the brushing, by using the bearing of a circular brush on the surface to be cleaned. Indeed, it is conceived that if a circular brush is mounted on a support in such way that it rolls on the surface to of course clean when one moves the support in a direction perpendicular to the axis of the brush, this one remaining in contact with the surface which is used to him as

raceway, all the hairs or bristles being mounted perpendicularly with the axis, will be presented always successively, perpendicularly at the contact point with the surface to be brushed.

The brush, rolling under the thrust which is printed for him, the hairs or bristles will not tend to be curved and the driver of the surface to be cleaned will thus be done always by the end and not by the sides of these hairs or bristles. One will thus obtain, instead of an effect of smoothing, an effect of pit which will destroy any greasy or viscous film effectively, as well as it will detach the pulverulent materials.

It goes without saying it will be easy, with a same suitably established brush, to use the rolling brush to obtain an effect of friction, since it will be enough to print to him reciprocating in perpendicular directions with its direction of rotation.

Such a brush will have [deg] to be able to be easily interchangeable, for example when it is used for the cleaning of the teeth.

The annexed drawing represents, as example, various embodiments of a rolling brush presenting the characteristics enumerated above, and particularly applicable at the cleaning of the teeth.

Figures 1 to 7 represent one of these play modes.

Figure 1 is a view out of cut following line 1-1 of figure 3, showing the mode of hooking of the cap of fixing of the rubbing surface, the single axis, crosses being in place to show its position after locking. Figure 2 is a view out of cut following line 2-2 of figure 1, showing the brush in partly cut place, and the axis with the torn off ends. Figure 3 is a view over brush with its cap of fixing in place, showing the apparatus of hooking of this last. Figure 4 is a side view of the cap of fixing of the brush shown out of cut on the figure' 1... Figure 5 is a view in end of - this same cap. Figure 6 is a side view of the sleeve of the brush, the cap removed to show the reserved notches for the passage of the axis, the brush being in place on the handle. Figure 7 is a view of the sleeve of the brush, the cap and the brush being in position of employment. Figure 8 is a longitudinal cut following line 8-8 of figure 9, showing a mode preferred of fixing of the brush. Figure 9 is a view out of transverse cut, following line 9-9 of figure 8.

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tudinale following line 10-10 of figure 11, showing another mode of fixing of the brush. Figure 11 is a view out of cut following line 11-11 of figure 10. Figure 12 is a view of detail of the brush intended to be adapt on the apparatus of figures 10 and 11.

Figures 13, 14, 15, 16 and 17 show a variant of the hooking by a flange, following the principle

of the cap of the figures

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Figure 13 is a cut following 13-13

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13 appeared. Figure 15 is a cut following line 13-13 of figure 14, showing one of the branches of clamp 17.

Figures 16 and 17 are respectively a plan view of the head of the brush and a view in elevation of the mounted brush on this head.

One will describe initially the apparatus of figures I to 7. This apparatus comprises a handle 1, of suitable form, provided with an head 2, presenting two flasks 3, 3' at the end of which a notch 4 is practised. The brush itself or rubbing surface, is preferably made up, by an axis 5 on which and circular members 6 juxtaposed are threaded.

This provision allows the easy cleaning of the various elements and the independent rotation of: each element, of which involves it lies is always ensured by its own bearing. It allows moreover the economic replacement of the elements most exposed to the wear and, optionally, the use of elements of different hardnesses, in a same set.

In the purpose avoiding the loss of axis 5, or the difficulty of mounting of the elements, one of these elements, for example that of the medium, will be made integral of the axis (. 2).

The brush is maintained in its support by means of a cap 7 provided with journals 8 and a pawl 9 intended to engage on a pin 10 integral of head 2. The internal face of flasks 3, 3' - comprises cells 11 intended to be used as bearings stops for journals 8 of the cap.

The mounting is the following one:

Ends of axis 5 of the brush being recessed so as to be able to receive a diameter portion reduced, journals 8, one fixed the aforementioned brush between the flasks of the cap which will hold it with the manner of a clamp. The brush being introduced into head 2, cap 7. being contrary to the aforementioned head, one engages journals 8 until they come to butt against their bearings 11. At this time, one makes carry out with the cap a complete half-turn, which causes to make him cap head 2 (. 1, 2, 3 and 7) and to engage pawl 9 on pin 10. The brush is - thus locked and axis 5 door then directly on bearings 11 of flasks 3, 3'.

A sufficient play is envisaged between axis 5 and journals 8, to retain the axis without exerting on him a pressure pendent the working of the brush, since pendent this working, the axis presses

exclusively on bearings 11.

In order to avoid any possibility of wound, in consequence of an incidental hooking of gencives or fabrics of the mouth pendent the brushing of the teeth, pawl 9 as well as cap 7 are completely embedded in head 2, one obviously g' making it possible to raise the aforementioned pawl to release the cap.

In the play mode of figures 8 and 9, flasks 3, 3 ' are slotted in 12 and pierced in i3 and 14; they present notches 15 at their free end.

The mounting of the rubbing surface is done in the following way: All the elements being threaded on axis 5, it is enough to introduce the whole thus made up between flasks 3, 3 ' until axis 5 engages in notches 15. These notches being widened towards the outer one, will oppose to a certain point a resistance with the input

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to exert a pressure on the brush, with its outer portion, in line with the line of cut 9-9 of figure 8, so that, under the action of the axis 5, edges of the aforesaid enco-

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cams and that the upper part of the head! 2 form a free spring to bend, since each flask is slotted into 12, in order to facilitate this action) and

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edges of notches 15 approach (position in full stroke on) and the aforementioned axis 5 is trapped in its bearings without it being possible for him to escape pendent employment from the brush.

To remove the brush, it is enough to open the bearings of acting on handle 1 on the one hand and the end of the head 2d' another hand, to draw aside the edges of notches 15. The brush écheppe then freely and its movable members 6 can be separated from the element integral of the axis to facilitate the cleaning.

Of course, one will be able, without nothing to change with the spirit of the invention, to use circular brushes in a part for example.

One will be able to also place in head 2 of the cylinders either in only one part, or formed independent unspecified material elements, forming also unspecified figures being able to be useful for the massage of gencives for example.

It goes also from oneself that one will change nothing with the invention if, instead of boring

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of an arbitrary form, oval for example, \_pour more or less to give elasticity to the part of head 2 intended to form spring.

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head 2, is in flasks 3, 3 ' an arbitrary number of holes intended for the flow of water, the flow of the air for leséchage, etc

In the apparatus shown on figures 10, 1 1 and 1 2 the fixing of the brush is ensured by using the elasticity of the flasks euxmêmes. For this purpose, the faces of the brushes, at each end of the axis, comprise a part 16 formant boss, intended for

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trant freely through the notches to come to take support on half landings 13.

To put the brush in place, one introduces it into head 2 until bosses 11 come to butt against the end of flasks 3, 3 '. At this time it is enough to exert a pressure on the brush; rounded portion 16 ' of bosses 11 will function like a cam and will oblige two flasks 3, 3 ' (. I O and It) to deviate.

The bosses penetrate then in cells 11 and the flasks, while returning to their initial position, lock the brush in position of employment.

One will operate in a reverse way to withdraw the brush.

Lastly, in the variant of figures 13, 14, 15, 16 and 17, one uses, instead of a cap 7, a single clamp 17 provided with pins 18 and 18 '.

Operation is the following one: Head 2 comprises a groove 2 ' intended to maintain clamp 17 in place. Cells

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faces of the flasks, to remove, at these points, any support with the branches of clamp 17.

It is enough, the clamp being in place on head 2, to press on the two arms of the clamp,

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ger the low part of the arms to be deviated.

This will cause to release the two notches of access of the axis in head 2.

One then puts in place brush 5-6 and as soon as the arms of the clamp are released, these last is closed again and pins 18, 18 ' come to block axis 5, as it is shown on

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represented to make the figure clearer.

To remove the brush one will operate in the same way on the arms of the clamp, but one will draw on the brush instead of pushing it; The various modes of fixing of the brush could obviously be used if one would like to be useful oneself of blocked interchangeable brushes, i.e. nonrolling. It would be enough in this case to employ square axes or provided with pins of locking, in the direction of the rotation. By employing a square or hexagonal axis, for example, one could use four or six brush elements, in order to employ entire surface of the brush, by successive fractions.

Lastly, one will note that without nothing to change with the spirit of the invention, one will be able to be satisfied to bore in each flask, an hole on a same axis and to fix the brushes in position, by means of an axis whose end would be threaded so as to be able to be screwed in one of the flasks.

summary:

1. Brush comprising an handle provided with a recessed head to one of its ends, and characterized in what in this recessed head is placed, of removable manner, a rubbing body maintained in place by an elastic apparatus serving of support to the axis of the aforesaid rubbing body;
2. In the brush following 1 [deg] the use of a rubbing body: a. Maintained in place and supported in the recessed head by means of a cap or clamp provided with branches forming springs; B. Formed of only one element; C. Constituted by several independent, mounted elements on a common axis; D. Of circular form, whatever the number of its constituent elements;
3. Brush following 1 [deg] characterized in what its recessed head constitutes itself the elastic apparatus now the rubbing body and him serving of support;
4. Play mode of the brush following
  3. , characterised in that its recessed head comprises two slotted flasks, each slit presenting one obviously close to its low end; these cavities serving of bearings at the ends of the axis of the rubbing body, when the lips of the slits are joined by their own elasticity;
5. Forms of execution in which: a. The rubbing body is consisted one or more idle mounted rotary members on a same axis; B. One or more of the elements of the rubbing body are keyed on their axis; C. The aforementioned rubbing body is fixed and is mounted on a polygonal axis so as to allow the use of all its surface rubbing by successive fractions.

